



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,953	04/11/2001	Marco Racanelli	00CON161P	3823
25700	7590	11/18/2003	EXAMINER	
FARJAMI & FARJAMI LLP 16148 SAND CANYON IRVINE, CA 92618			MALDONADO, JULIO J	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N . 09/833,953	Applicant(s) RACANELLI, MARCO	
	Examiner Julio J. Maldonado	Art Unit 2823	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-15, 17-23 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-15, 17-23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 7-11, filed on 08/20/2003, with respect to the rejection(s) of claim(s) 1, 3, 6-12, and 14-23 under 35 USC §102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Zaccherini (U.S. 5,436,177) and Shao et al. (U.S. 6,156,602).

2. The cancellation of claims 2 and 24 is acknowledged.

3. Claims 1, 3-15, 17-23 and 25 are pending in the application.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-15, 17-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaccherini (U.S. 5,436,177) in view of Shao et al. (U.S. 6,156,602).

In reference to claim 1 and 14 Zaccherini (Fig.1-6) teaches an analogous method to form implanted regions including the steps of forming a layer (7) comprising polycrystalline silicon over a transistor gate region (4) and a field oxide region (5); forming a doping barrier (10) above said polycrystalline silicon over said field oxide region (5); doping said layer over said transistor gate region with a dose of a first dopant

(11), wherein said dose of said first dopant is a dosage greater than required to result in said layer over said transistor gate region (4) having transistor gate electrical properties; removing said doping barrier (10); doping said layer over said transistor gate region (4) and said field oxide region (5) with a second dopant (13) so as to form a high resistivity resistor in said layer (7) over said field oxide region (5), without affecting said transistor gate electrical properties (column 3, lines 1-53).

Zaccherini fails to teach doping a portion of said resistor region of said polycrystalline silicon layer with a third dopant so as to form a high-doped region in said resistor region; fabricating a contact region over said high-doped region in said resistor region of said polycrystalline silicon layer; said contact region being electrically connected to said resistor region. However, Shao et al. (Figs.1-7) in a related method to form implanted regions teach forming a layer (16) comprising polycrystalline silicon over a transistor gate region and a field oxide region (12); forming a resistor region (38) and a transistor region (40) by patterning the polysilicon layer (16); doping a portion of said resistor region (38) of said polycrystalline silicon layer (16) with a third dopant so as to form a high-doped region (72, 74) in said resistor region; fabricating a contact region (column 8, lines 9 – 20) over said high-doped region (72, 74) in said resistor region (38) of said polycrystalline silicon layer (16), said contact region (72, 74) being electrically connected to said resistor region (38) (column 4, line 20 – column 8, line 42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Zaccherini and Shao et al. to enable

forming high doping areas and electrical contacts in the high resistivity resistor of Zaccherini as taught by Shao et al.

In reference to claims 3-13, 15, 17-23 and 25, the combined teachings of Zaccherini and Shao et al. teach wherein said layer comprises polysilicon (Zaccherini, column 3, lines 1 – 6); wherein said transistor region is an NFET or an PFET (Shao et al., column 5, lines 7 – 21); wherein said field oxide region comprises silicon oxide (Zaccherini, column 2, lines 53 – 61); wherein the first dopant is an N-type dopant comprising phosphorous at a dose of approximately 6.5×10^{15} atoms per square centimeter (Zaccherini, column 3, lines 23 – 32); wherein the second dopant is a P-type dopant comprising boron at a dose of approximately 1.0×10^{15} atoms per square centimeter (Zaccherini, column 3, lines 44 – 53); wherein said doping barrier comprises a photoresist (Zaccherini, Fig.4); wherein the polycrystalline silicon layer includes a gate region (4) (Zaccherini, column 2, lines 46 – 60); and wherein said contact region comprises a silicide (Shao et al., column 8, lines 8 – 20).

Response to Arguments

6. Applicant's arguments with respect to claims 1, 3-15, 17-23 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

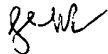
8. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

Application/Control Number: 09/833,953
Art Unit: 2823

Page 6


JMR
11/7/03


George Fourson
Primary Examiner